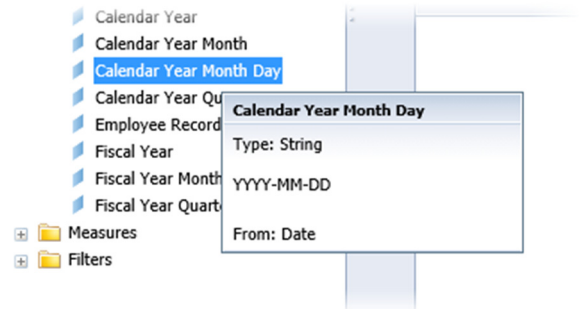


Washington Workforce Analytics (WWA) Date Variables and Formats

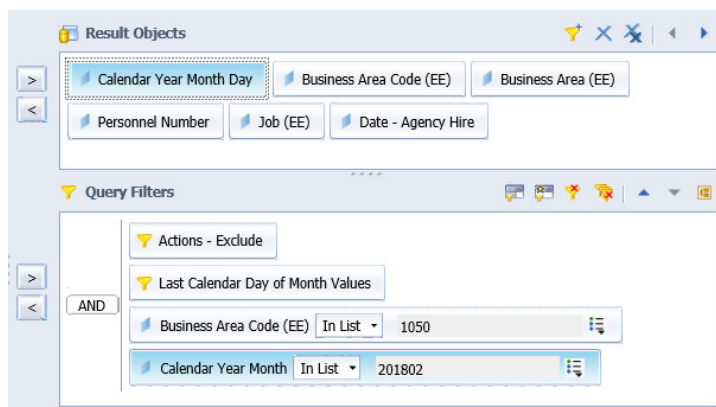
To allow chronological sorting, the data type for most Date dimensions is Text (String). Users may change both the data type and date format. Hover over the Date dimension to identify the data type and date format.

- ✓ Changing the data type of a date field allows users to calculate the length of time between two dates. To use a date in a calculation, first create a variable.
- ✓ Changing the date format changes how the date displays. *For example, change the date format from 2018-02-28 to 02/28/2018.*



Changing Data Types for Date Calculations

In this example, we will convert the **Date – Agency Hire** data type from Text to Date to calculate employees' tenure with our agency as of today. First create an ad hoc query in the WWA EDW Headcount and Personnel Actions universe:



In the Headcount and Personnel Actions universe, we must use the **Actions – Exclude** pre-defined filter when creating queries not related to actions.

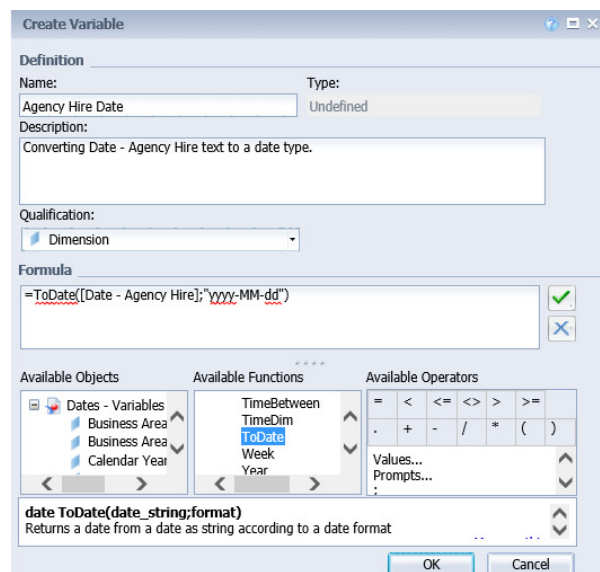
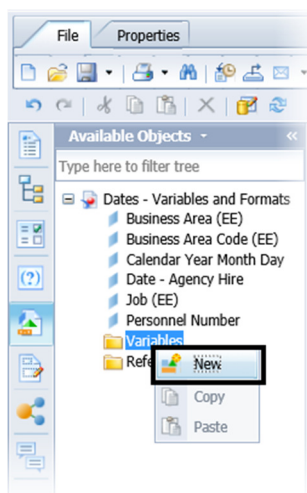
The pre-defined filter **Last Calendar Day of Month Values** is used when creating a query filter using **Calendar Year Month**.

Query results:

Calendar Year Month Day	Business Area Code (EE)	Business Area (EE)	Personnel Number	Job (EE)	Date - Agency Hire
2018-02-28	1050	Office of Financial Management		OFM LABOR NEGOTIATOR	2015-12-07
2018-02-28	1050	Office of Financial Management		OFM FORECAST ANALYST	2008-06-16
2018-02-28	1050	Office of Financial Management		OFM POLICY ADVISOR	2014-02-01
2018-02-28	1050	Office of Financial Management		OFM FORECAST ANALYST	2016-11-01

Converting Data Type from Text to Date and Formatting: Date – Agency Hire

1. Right-click the **Variables** Folder in the Available Objects.
2. Select: **New**.
3. Input: **Name**. This will be the name of your new variable.
4. Input: **Description**.
→ A description for the variable is helpful, especially if you have multiple variables or will be sharing the report with other users.
5. Input: **Formula**.
6. Select: **OK**.



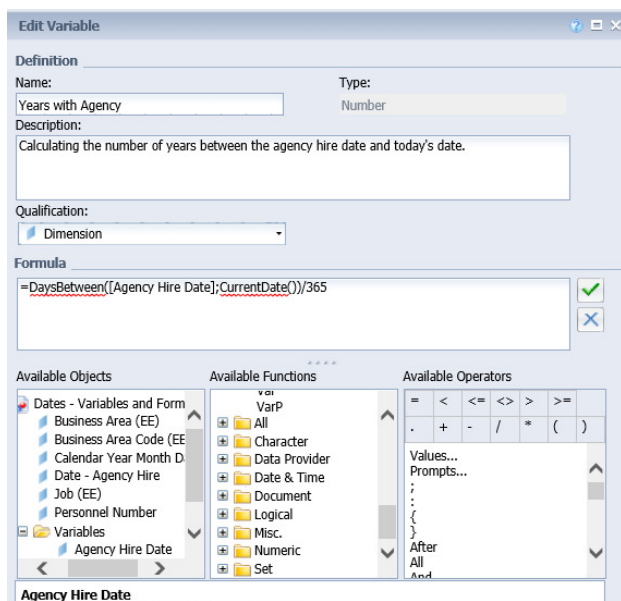
In this example we use the function **ToDate()** to convert the Date – Agency Hire data type from Text to Date. We then select a new date format that represents years, months, and days separated by dashes (example: 2015-12-07).

Formula =ToDate([Date – Agency Hire];"yyy-MM-dd")

Calculate Days Between Formula: Current Date

7. Right-click the **Variables** Folder in the Available Objects.
8. Select: **New**.
9. Input: **Name**.
10. Input: **Description**.
11. Input: **Formula**.
12. Select: **OK**.

→ The Variable **Agency Hire Date** is used in the formula and not the **Date – Agency Hire** object.



In this example we use the functions **DaysBetween()** and **CurrentDate()** to create the formula, and divide by 365 days to get the number of years. Dividing by 365 provides years instead of days.

Formula =DaysBetween([Agency Hire Date];Currentdate())/365

- 13.** Drag and drop the new variable in to report results.

In the example below, Years with Agency was calculated for the time between Date – Agency Hire and March 6, 2018 - the date the report was run.

Calendar Year Month Day	Business Area Code (EE)	Business Area (EE)	Personnel Number	Job (EE)	Date - Agency Hire	Years with Agency
2018-02-28	1050	Office of Financial Management		OFM LABOR NEGOTIATOR	2015-12-07	2.25
2018-02-28	1050	Office of Financial Management		OFM FORECAST ANALYST	2008-06-16	9.73
2018-02-28	1050	Office of Financial Management		OFM POLICY ADVISOR	2014-02-01	4.09
2018-02-28	1050	Office of Financial Management		OFM FORECAST ANALYST	2016-11-01	1.34
2018-02-28	1050	Office of Financial Management		OFM POLICY ADVISOR	2002-04-01	15.94
2018-02-28	1050	Office of Financial Management		OFM FORECAST ANALYST	2009-10-01	8.43

Note: Variables are the recommended best practice. Though functionality exists to create new columns and formulas within your query results table, variables provide more flexibility since they can easily be added and removed from reports, as well as copied and modified for other purposes.

Converting Data Type from Text to Date and Formatting: Calendar Year Month Day

In this example, we will convert **Calendar Year Month Day** from Text to a Date data type so that we can calculate the employees' tenure with our agency as of the last day of the calendar month.

- 14.** Right-click the **Variables** Folder in the Available Objects.
- 15.** Select: **New**.
- 16.** Input: **Name**.
- 17.** Input: **Description**.
- 18.** Input: **Formula**.
- 19.** Select: **OK**

Edit Variable

Definition

Name: Last Calendar Date Type: Date time

Description: Converting Calendar Year Month Day text to date type.

Qualification: Dimension

Formula: =ToDate([Calendar Year Month Day];"yyyy-MM-dd")

In this example we use the function **ToDate** to convert the Calendar Year Month Day data type from Text to Date. We then select a date format that represents years, months, and days separated by dashes (example 2015-12-07).

Formula =ToDate([Calendar Year Month Day];"yyyy-MM-dd")

Calculate Days Between Formula: Last Day of Calendar Year Month

20. Right-click the **Variables** Folder in the Available Objects.
21. Select: **New**.
22. Input: **Name**.
23. Input: **Description**.
24. Input: **Formula**.
25. Select: **OK**.

Edit Variable

Definition

Name: Number of Years Type: Number

Description: Calculating the number of years between the last calendar day of month and the agency hire date.

Qualification: Dimension

Formula: =DaysBetween([Agency Hire Date];[Last Calendar Date])/365

In this example we use the function **DaysBetween()** with our two variables “Agency Hire Date” and “Last Calendar Date”. Dividing by 365 provides years instead of days.

Formula =DaysBetween([Agency Hire Date];[Last Calendar Date])/365

In the example below, Number of Years was calculated for the time between the Date – Agency Hire and the last day of February 2018 – the date selected when the report was run.

Calendar Year Month Day	Business Area Code (EE)	Business Area (EE)	Personnel Number	Job (EE)	Date Agency Hire	Number of Years
2018-02-28	1050	Office of Financial Management		OFM LABOR NEGOTIATOR	2015-12-07	2.23
2018-02-28	1050	Office of Financial Management		OFM FORECAST ANALYST	2008-06-16	9.71
2018-02-28	1050	Office of Financial Management		OFM POLICY ADVISOR	2014-02-01	4.08
2018-02-28	1050	Office of Financial Management		OFM FORECAST ANALYST	2016-11-01	1.33
2018-02-28	1050	Office of Financial Management		OFM POLICY ADVISOR	2002-04-01	15.92
2018-02-28	1050	Office of Financial Management		OFM FORECAST ANALYST	2009-10-01	8.42
2018-02-28	1050	Office of Financial Management		OFM EXEC MANAGER	2011-11-01	6.33
2018-02-28	1050	Office of Financial Management		OFM FORECAST ANALYST	2008-06-16	9.71

Formatting Date Types in the Query Table

Use the date variables that you created if you want to change the date format in your results.

- ✓ **Calendar Year Month Day** and **Date – Agency Hire** date formats cannot be changed because they are text.

Calendar Year Month Day	Last Calendar Date	Business Area Code (EE)	Business Area (EE)	Personnel Number	Job (EE)	Date - Agency Hire	Agency Hire Date	Number of Years
2018-02-28	2/28/18	1050	Office of Financial Management		OFM LABOR NEGOTIATOR	2015-12-07	12/7/15	2.23
2018-02-28	2/28/18	1050	Office of Financial Management		OFM FORECAST ANALYST	2008-06-16	6/16/08	9.71
2018-02-28	2/28/18	1050	Office of Financial Management		OFM POLICY ADVISOR	2014-02-01	2/1/14	4.08
2018-02-28	2/28/18	1050	Office of Financial Management		OFM FORECAST ANALYST	2016-11-01	11/1/16	1.33
2018-02-28	2/28/18	1050	Office of Financial Management		OFM POLICY ADVISOR	2002-04-01	4/1/02	15.92
2018-02-28	2/28/18	1050	Office of Financial Management		OFM FORECAST ANALYST	2009-10-01	10/1/09	8.42

1. Select within the column to highlight the values.
2. Select: **Formatting** tab.
3. Select: **Numbers** tab.
4. Use the drop down menu to select an alternate format.

Repeat Steps 1 – 4, as necessary.

Calendar Year Month Day	Last Calendar Date	Business Area Code (EE)	Business Area (EE)	Personnel Number	Job (EE)	Date - Agency Hire	Agency Hire Date	Number of Years
2018-02-28	2/28/18	1050	Office of Financial Management		OFM LABOR NEGOTIATOR	2015-12-07	12/7/15	2.23
2018-02-28	2/28/18	1050	Office of Financial Management		OFM FORECAST ANALYST	2008-06-16	6/16/08	9.71
2018-02-28	2/28/18	1050	Office of Financial Management		OFM POLICY ADVISOR	2014-02-01	2/1/14	4.08
2018-02-28	2/28/18	1050	Office of Financial Management		OFM FORECAST ANALYST	2016-11-01	11/1/16	1.33
2018-02-28	2/28/18	1050	Office of Financial Management		OFM POLICY ADVISOR	2002-04-01	4/1/02	15.92
2018-02-28	2/28/18	1050	Office of Financial Management		OFM FORECAST ANALYST	2009-10-01	10/1/09	8.42
2018-02-28	2/28/18	1050	Office of Financial Management		OFM EXEC MANAGER	2011-11-01	11/1/11	6.33
2018-02-28	2/28/18	1050	Office of Financial Management		CONF. SECRETARY	2002-10-16	10/16/02	15.38
2018-02-28	2/28/18	1050	Office of Financial Management		OFM MANAGER	2011-10-01	10/1/11	6.42
2018-02-28	2/28/18	1050	Office of Financial Management		OFM MANAGER	1998-08-01	8/1/98	19.59

In the example below, Last Calendar Date and Agency Hire Date variables were reformatted.

Calendar Year Month Day	Last Calendar Date	Business Area Code (EE)	Business Area (EE)	Personnel Number	Job (EE)	Date - Agency Hire	Agency Hire Date	Number of Years
2018-02-28	2/28/2018	1050	Office of Financial Management		OFM LABOR NEGOTIATOR	2015-12-07	December 7, 2015	2.23
2018-02-28	2/28/2018	1050	Office of Financial Management		OFM FORECAST ANALYST	2008-06-16	June 16, 2008	9.71
2018-02-28	2/28/2018	1050	Office of Financial Management		OFM POLICY ADVISOR	2014-02-01	February 1, 2014	4.08
2018-02-28	2/28/2018	1050	Office of Financial Management		OFM FORECAST ANALYST	2016-11-01	November 1, 2016	1.33
2018-02-28	2/28/2018	1050	Office of Financial Management		OFM POLICY ADVISOR	2002-04-01	April 1, 2002	15.92
2018-02-28	2/28/2018	1050	Office of Financial Management		OFM FORECAST ANALYST	2009-10-01	October 1, 2009	8.42
2018-02-28	2/28/2018	1050	Office of Financial Management		OFM EXEC MANAGER	2011-11-01	November 1, 2011	6.33
2018-02-28	2/28/2018	1050	Office of Financial Management		CONF. SECRETARY	2002-10-16	October 16, 2002	15.38

Formatting Dates in the Variable

Variables can also be created to simply change the way text displays.

✓ Changing the display format of the date text **does not** change the data type.

1. Right-click the **Variables** Folder.
2. Select: **New** to open the Edit Variable window.
3. Input: **Name**.
4. Input: **Description**.
5. Input: **Formula**.
6. Select: **OK**

In this example we use the Character Functions **Substr()**, **Right()**, and **Left()**. **Substr** returns part of a string and we identify at which character we start, and the number of characters to return. **Right** returns the last characters of a string, and **Left** returns the first characters of a string.

Formula

=Substr([Calendar Year Month Day];6;2)+"/"+Right([Calendar Year Month Day];2)+"/"+Left([Calendar Year Month Day];4)

→ The new variable **MM/DD/YYYY** is a text string and is not recognized as a number.

→ To change Calendar Year Month text (201802) to MM/YYYY, use formula:

=Right([Calendar Year Month];2)+"/"+Left([Calendar Year Month];4)

Calendar Year Month Day	MM/DD/YYYY	Last Calendar Date	Business Area Code (EE)	Business Area (EE)	Personnel Number
2018-02-28	02/28/2018	2/28/2018	1050	Office of Financial Management	
2018-02-28	02/28/2018	2/28/2018	1050	Office of Financial Management	
2018-02-28	02/28/2018	2/28/2018	1050	Office of Financial Management	
2018-02-28	02/28/2018	2/28/2018	1050	Office of Financial Management	
2018-02-28	02/28/2018	2/28/2018	1050	Office of Financial Management	
2018-02-28	02/28/2018	2/28/2018	1050	Office of Financial Management	
2018-02-28	02/28/2018	2/28/2018	1050	Office of Financial Management	